

Works great in small engines like...

Your lawn mower. Your mover. Your chainsaw Your

ATV. Your motor 🛬 boat.

Your weed trimmer. Your personal watercraft.

Your generator 🛚 🚛 ..

The facts about E-10 Unleaded.

Ethanol is a normal component of today's gasoline:

All gasoline-powered cars sold in the United States are designed to use E-10 Unleaded. Gasoline containing up to 10% ethanol has been increasing in use in the United States since the late 1970s. Today, over 40% of the gasoline in the U.S. contains ethanol, and the percentage is projected to continue to increase as the U.S. diversifies its fuel sources.

High octane: The ethanol in E-10 Unleaded has a neat octane of 97 and a blending octane of 112, making it a high-octane component of today's gasoline.

Clean burning: Across the United States, the use of E-10 Unleaded—or reformulated gasoline containing ethanol—has been used to help keep the air clean.

Energy diverse: The ethanol in E-10 Unleaded can be made here—boosting our economy, reducing our reliance on foreign oil, and helping to improve our energy security.

Renewable: The ethanol in E-10 Unleaded can be made from a variety of renewable sources, such as corn, sorghum, molasses, sugarcane, waste paper, wood waste, and yard waste.

For cars, boats & equipment, not aircraft: All Federal Aviation Administration (FAA) Supplemental Type Certificates prohibit the use of E-10 Unleaded; do not use in airplanes.



E-10 Unleaded burns leaner for increased performance. The increased

oxygen in E-10 Unleaded "enleans" the air/fuel ratio leading to more complete combustion and reduced emissions. The effect is the same on your engine as if the outside air temperature drops or operating altitude is decreased. A simple carburetor adjustment or change in jet size will compensate for excessive enleanment if necessary.

E-10 Unleaded does not damage engine parts or fuel system components. E-10 Unleaded is compatible with all fuel system components that have been manufactured in the last 15 years and most of those manufactured before that time. Fuel components on older equipment tend to become

components on older equipment tend to become swollen, brittle and stiff regardless of specific fuel formulation; replacement of such parts should be considered part of a good maintenance program.

E-10 Unleaded will clean a dirty fuel tank helping improve performance. If your fuel tank is dirty or has not been regularly maintained, using E-10 Unleaded may loosen rust and contaminants that have built up over the years—and your fuel filter may clog initially. But a simple change in filter—and continued use of E-10 Unleaded—will ensure a clean tank and reduced build-up of contaminants in the future, leading to improved performance.

E-10 Unleaded reduces toxic emissions. E-10 Unleaded burns cleaner, producing less toxic exhaust and reducing carbon monoxide emissions—and that's good for everyone who breathes. This is especially significant when you consider that a lawn mower emits over 10 times more pollution than a car!

E-10 Unleaded does not separate from two-stroke engine oil mixtures. The ethanol in E-10 Unleaded does not affect the mixture of gasoline and two-stroke engine oil unless there is a high level of water in the gasoline (above 0.5 percent). By comparison, ordinary gasoline can only hold 0.02 percent water. So E-10 Unleaded is even more water-tolerant.

E-10 Unleaded requires the same fuel handling care as other gasoline. Fuel—of any type—needs to be kept clean and fresh for optimum performance. All gasoline containers should be kept tightly sealed. All fuel has a shelf life; do not store it for an extended period. When preparing equipment for extended storage, some manufacturers recommend draining the fuel system while others recommend filling the system and adding a fuel stabilizer. Always follow the recommendations in the owner's manual.

Keep your engine tuned. The difference between regular unleaded and E-10 Unleaded is within the normal operating range of the engine and will not be noticeable unless your engine is out of tune. An engine will operate at its best when properly adjusted to the manufacturer's tune-up specifications.

The facts about



in small engines.

Can you use



in your small engines and power equipment?

course you can!

Small engines—from lawnmowers to outboard motors, from motorcycles to gensets—need to perform using gasoline that's generally available to the public. Since E-10 Unleaded is available all across the United States, it makes sense that manufacturers of small engines and power equipment have built their products to run on this renewable, clean-air fuel.

The composition of gasoline has changed dramatically in the past decade. Automakers changed their owner's manual language to reflect these changes. But due to the diversity of the small engine market, owner's manuals for many non-automotive engines continued to include cautionary language regarding E-10 Unleaded long after the owner's manuals for automobiles fully endorsed E-10 Unleaded.

The fact is that a 10% ethanol blend (E-10 Unleaded) is an approved fuel that is covered by engine warranties that approve the use of unleaded gasoline.

And that includes small engines, too.

Equipment & Engine Manufacturers' Approval of the Use of E-10 Unleaded with Ethanol

POWER EQUIPMENT	E-10 Unleaded Approval	POWER EQUIPMENT	E-10 Unleaded Approval
Am. Yard Prd./Roper/Ra	ılly YES *	Simplicity	YES
Ariens	YES †	Snapper	NM
Bolens/Troy-Bilt	YES *	Stihl Inc.	YES
Briggs & Stratton	YES	Tecumseh	YES *
Coleman	YES *	Toro	YES
Cub Cadet	NM	RECREATIONAL	
Dixon	YES	ArcticCat (Arctco)	YES *
Echo	YES	Honda	YES
Grasshopper	NM	Kawasaki	YES
Homelite	YES	Polaris	YES *
Honda Power Equipmer	nt YES	Skidoo/Bombardier	YES
John Deere (4-Stroke)	YES	Suzuki	YES *
Kawasaki	YES	Yamaha	YES
Kohler	YES	Tallialia	TES
Kubota	NM	BOATS/MARINE	(100)
Lawnboy	YES	Honda	YES
McCulloch	YES *	Kawasaki	YES
MTD	YES	Mercury	YES *
Onan	YES *	OMC (Johnson/Evinrude	e) YES *
Poulan/Weedeater	NM	Pleasurecraft	YES *
Ryobi	YES *	Tigershark (Arctco)	YES *
Sears	YES *	Tracker	YES *
Shindaiwa	NM	Yamaha	YES *

YES Permitted/approved

YES † Engine manufacturer indicates approval but no indication from equipment manufacturer; use of E-10 Unleaded does not void warranty

YES * Approved with some minor guidelines or suggested modifications

NM Not mentioned in the owner's manual, but use of E-10 Unleaded does not void warranty

This information is based on a review of each manufacturer's equipment owner's manuals. Wording may vary slightly across a manufacturer's product line but is generally similar if not identical. Position and wording for a manufacturer's two-stroke versus four-stroke models may vary.

Additionally, some manufacturers use several engine suppliers (e.g., Briggs & Stratton, Tecumseh, and Kohler) and may utilize the applicable engine manufacturer's fuel recommendations for models with those engines. It should be noted that these recommendations are for new or late model equipment and may or may not apply to earlier models.

This information was gathered by Downstream Alternatives, Inc. and through other sources.

E-10 Unleaded In Motorcycles

Following are excerpts from motorcycle owner's manuals regarding the use of E-10 Unleaded:

Harley-Davidson

"Gasoline/ethanol blends can be used in your motorcycle if the ethanol content does not exceed 10%... 'Reformulated gasoline' is a term used to describe gasoline blends that are specifically designed to burn cleaner than other types of gasoline, leaving fewer 'tailpipe' emissions. They are also formulated to evaporate less when you are filling your tank. Reformulated gasolines use additives to 'oxygenate' the gas.

"Your motorcycle will run normally using this type of gas and Harley-Davidson recommends you use it when possible, as an aid to cleaner air in our environment."

Honda

"You may use gasoline containing up to 10% ethanol by volume. Gasoline containing ethanol may be marketed under the name Gasohol."

Kawasaki

"Gasoline containing up to 10% ethanol (alcohol produced from agricultural products such as corn)...is approved for use."

Suzuki

"Oxygenated fuels...may be used in your motorcycle without jeopardizing the New Vehicle Limited Warranty or the Emission Control System Warranty... Blends of unleaded gasoline and ethanol...may be used in your motorcycle if the ethanol content is not greater than 10%... To help clean the air, Suzuki recommends that you use the oxygenated fuels."

Yamaha

"Gasohol containing ethanol can be used if ethanol content does not exceed 10%."



E-10 Unleaded is coming to Hawaii.

Beginning April 2, 2006, at least 85% of the gasoline sold in Hawaii will contain 10% ethanol. Another name for this fuel formulation is "F-10 Unleaded".

Ethanol is a renewable resource that could be made from sugarcane and other locally available materials such as waste paper and yard and wood waste. Local fuel production could help bolster our state economy, create new jobs, and lessen our dependence on imported fossil fuels.

Fuel marketers in Hawaii have already begun preparing for the transition, to ensure you will get properly blended E-10 Unleaded gasoline from your favorite service station.

Ethanol-blended gasoline has been used successfully elsewhere in the U.S. for years. We're confident the introduction in Hawaii will be equally successful and we're excited about the opportunities it creates for the State.





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More information is available at: new-fuel.com